

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
28 October 2004 (28.10.2004)

PCT

(10) International Publication Number  
**WO 2004/092430 A2**

- (51) International Patent Classification<sup>7</sup>: C22C 1/00 (74) Agent: PRIETO, Joe, R.; The Dow Chemical Company, Intellectual Property Section, P.O. Box 1967, Midland, MI 48674-1967 (US).
- (21) International Application Number: PCT/US2004/010837
- (22) International Filing Date: 8 April 2004 (08.04.2004) (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/461,642 9 April 2003 (09.04.2003) US
- (71) Applicant (for all designated States except US): DOW GLOBAL TECHNOLOGIES INC. [US/US]; Washington Street, 1790 Building, Midland, MI 48674 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): PYZIK, Aleksander, J. [US/US]; 3012 Scarborough Lane, Midland, MI 48640 (US). HU, Terry, I. [US/US]; 6117 Londonberrie Court, Midland, MI 48640 (US). MORGAN, Ted, A. [US/US]; 4610 Bristol Court, Midland, MI 48640 (US). LISTER, Daniel, R. [US/US]; 201 Helen Street, Midland, MI 48640 (US). NEWMAN, Robert, A. [US/US]; 218 Wanetah Drive, Midland, MI 48640 (US). LUNGARD, Richard, Allen [US/US]; 919 Whispering Oak Drive, Midland, MI 48642 (US). DENG, Qin [US/US]; 306 Buring Bush Lane, Midland, MI 48642 (US).
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**  
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



WO 2004/092430 A2

(54) Title: COMPOSITION FOR MAKING METAL MATRIX COMPOSITES

(57) Abstract: In one embodiment, a composition (10) to be mixed with a molten metal to make a metal matrix composite, the composition characterized by: a ceramic reinforcing filler (12), the ceramic reinforcing filler not being wettable by molten aluminum and/or not being chemically stable in molten aluminum, the ceramic reinforcing filler being coated with a ceramic material, the ceramic material being wettable by and chemically stable in molten aluminum. In a related embodiment, a composition (20) to make a porous preform to be infiltrated by molten metal to make a metal matrix composite, the composition characterized by: a ceramic reinforcing filler (23), the ceramic reinforcing filler not being wettable by molten aluminum, the ceramic reinforcing filler being coated with a ceramic material (22) and optionally with a metal (21) such as nickel, the ceramic material being wettable by molten aluminum. The ceramic material can be coated on the ceramic reinforcing filler by a vacuum deposition technique such as vacuum sputtering.